

BARRIER SYSTEMS

The present invention relates to barrier systems, in particular to a barrier system of particular use in queuing situations, deterring entry of personnel into prohibited areas and for guiding flows of people.

A well-known system for directing queues involves a device including vertically supported post carrying at its upper end on one side therefore a length of webbing retractably mounted upon a tensioned reel. The free end of the webbing includes an attachment element which is adapted to be retained by a corresponding connecting element on the opposite side of the upper end of the post. By this arrangement, a plurality of such devices can be linked to form a barrier.

Such barriers are highly effective but are cumbersome. They are not well adapted for ease of movement. The present invention seeks to address this problem.

In its broadest sense, the present invention provides a barrier system comprising a main pillar and at least one demountable satellite pillar wherein each of said main and satellite pillars includes rolling means, such as wheels or castors, enabling the pillar to be moved easily along a surface. Each of the pillars is joined to an adjacent pillar by at least one retractable webbing assembly.

Preferably each pillar is joined to each adjacent pillar by two retractable webbing assemblies.

In one embodiment, each retractable webbing assembly comprises a length of webbing mounted at a first end thereof to a tensioned reel for retraction thereinto and mounted at a second end thereof to an attachment element adapted to be received and retained by a corresponding connecting element upon the adjacent pillar.

Preferably, the attachment element is a loop of webbing and the connecting element is an arcuate hook or loop.

5 In an alternative embodiment, each retractable webbing assembly comprises a length of webbing mounted at a first end thereof to a first tensioned reel for retraction there into and at a second end thereof to a second tensioned reel for retraction there into; the first and second reels each being mounted upon a respective pillar.

10 Typically, the main pillar is connected to two satellite pillars. Any number of further satellite pillars may be attached to these satellite pillars in series.

The above and other aspects of the present invention will now be described in further detail, by way of example only, with reference to the accompanying figures in which:

15 Figure 1 is a perspective view of an embodiment of a first embodiment of a barrier in accordance with the present invention in an expanded or operative configuration;

Figure 2 illustrates more closely the method of retaining the webbing in position in the embodiment of Figure 1;

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Figure 3 illustrates a braking arrangement for the wheels of the embodiment of Figure 1;

25 Figure 4 is a plan view of the embodiment of Figure 1 in a retracted, or stowed configuration.

Figure 5 is a part side view illustrating an alternative embodiment of a webbing coupling assembly;

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Figure 6 is a perspective view of the main pillar of a second embodiment of the present invention;

Figure 7 is a perspective view of the second embodiment including the main pillar of Figure 6;

5 Figure 8 is a perspective view of a modification of the satellite pillar of the second embodiment in a deployed configuration; and

Figure 9 is a perspective view of the satellite pillar of Figure 8 in a stowed configuration.

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Referring to Figures 1 to 4, an embodiment of a barrier in accordance with the present invention may typically include a main pillar 10 and demountable first and second satellite pillars 11,12

15 In the embodiment shown, satellite pillars 11,12 are demountable by means of their each carrying a horizontal bar 13 receivable in a corresponding elongate cavity 14 provided in main pillar 10.

20 Main pillar 10 and each of the satellite pillars 11,12 includes a pair of wheels. As illustrated, main pillar 10 has a pair of wheels 20 mounted at respective ends of a common axle mounted on the frame of the pillar 10, whereas satellite pillars 11,12 have separate wheels 21,22 mounted independently. Alternative arrangements will be readily apparent to the skilled person, including the use of alternative rolling means such as castors.

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Pillar wheels 20,21,22 are lockable to prevent their rotation and thus movement of the respective pillar once at the desired location. Suitably this is achieved by a simple brake mechanism of the kind typically found on a child's pram or buggy in which a bar 23 (Figure 3) or similar element is caused to bear down upon the rolling surface of
30 the wheel (typically a deformable rubber composition) by means of the bar 23 being

pivotally mounted upon a frame 24 and actuatable by means of a foot-operated pedal 25.

5 In the embodiment shown, each satellite pillar 11,12 is joined to the main pillar 10 by two lengths of webbing 30,31. The webbing may be mounted by any conventional means. In the embodiment shown, a first end of each length of webbing is mounted on a tensioned reel 34 in which the webbing is spring-biased into a retracted or non-extended configuration. A second end of the webbing is terminated in an attachment element 32 which is adapted to be received by a corresponding connecting element 32
10 which is adapted to be received by a corresponding connection element 33 mounted upon a respective pillar.

The specific mounting of the webbing is not essential and many suitable arrangements will be apparent to the skilled person. In the embodiment shown, each tensioned reel
15 34 of the webbing assemblies whereby the main pillar 10 is joined to adjacent satellite pillars 11,12 is mounted a main pillar 10. Tensioned reel 34 could equally well be mounted upon each satellite pillar.

In an alternative embodiment, not shown, both ends of the webbing 30,31 are
20 retractably mounted upon respective tensioned reels.

Suitably, the webbing is formed from a reflective material and may carry suitable wording by way of a notice, for example "KEEP OUT" or "STAND BACK" or arrows indicating a direction of movement. The webbing may also be connected to an
25 alarm system activated, for example, upon contact with the webbing.

The barrier may also include illumination modules 40, powered by internal batteries or an external supply. One area where it is envisaged that the present barrier will find great use is as a mobile barrier for erecting adjacent to an aircraft when standing at an
30 airport gate. The barrier can be used to direct passengers away from hazards such as

the engines or the wings generally. Particularly for night-time use, the addition of illumination will be of great benefit.

It will be appreciated that any number of satellite pillars 11,12 may be connected in series to a central main pillar 10 to provide a barrier of substantially any length.

In the preferred embodiments, main pillar 10 includes, for additional support, small wheels or castors 41. Typically, there are mounted below a plate 42 of the pillar 10 which can also act as a support for supplementary articles depending upon the context in which the apparatus will be used, such as a fire extinguisher.

Figure 5 illustrates an alternative, and preferred, arrangement for coupling the webbing to a satellite pillar. The satellite pillar 12 is provided with a hook 43. Hook 43 has a generally arcuate or half-moon shape including an upper portion 44 which turns downwardly. Webbing 30 terminates in a loop 45, as shown, suitably formed by stitching a portion of the webbing back upon itself. Loop 45 is located over hook 43 and is retained in place by downwardly turning upper portion 44. The use of an arcuate hook is advantageous in that it readily allows for movement of the webbing away from the horizontal, without any twisting or buckling of the webbing (shown to an exaggerated extent by the dotted lines in Figure 5).

Figures 6 and 7 show a second embodiment of a barrier in accordance with the present invention. The barrier comprises a main pillar 110 with satellite pillars 111,112 each coupled to main pillar 110 by webbing straps 130 mounted in reels or cassettes 134, each strap having a terminal loop 145 engageable over a hook 143 of the type described above with respect to Figure 5.

In this embodiment, the main pillar 110 does not have an elongate cavity (14 in Figure 1) for receipt of a horizontal bar 113 of each satellite pillar. In its place, main pillar 110 simply has an aperture 114 through which the bar 113 may pass. In some designs, no aperture may be necessary. Engagement of the satellite pillars 111,112 to

the main pillar 110 is achieved by alternative means. The bar 113 of each satellite pillar is provided with a cross-member 115. Cross-member 115 is receivable in a corresponding orientated saddle 116 mounted upon the main pillar 110. Saddle 116 consists, in its simplest form, of two parallel horizontal plates spaced apart by an amount slightly greater than the thickness of cross-member 115, which is received between the two plates. In the preferred arrangement shown, upper plate 117 projects from the body of main pillar 110 by a lesser extent than lower plate 118. This arrangement makes it easier for a user to quickly engage cross-member 115 in the saddle 116. Furthermore, in this preferred arrangement, the plates 117,118 of the saddle are divided to provide a vertical slot. The slot allows the provision of a guide or locking pin at a suitable point on the underside of horizontal bar 113 of the satellite pillar 111,112, again to assist in easy engagement of the pillars. There may also be a pin on the upperside of bar 113. Alternatively, as shown in Figure 7, cross-member 115 may include turned-up wings 119 at each end, with a separation substantially corresponding to the width of the saddle 116.

Figures 10 and 11 illustrate this engagement arrangement in greater detail, although this embodiment the upper plate 117 is not divided as no guide pin is to be provided on the upper surface of horizontal bar 113.

A similar saddle 116 and aperture 114 are provided on the opposite side of the body of main pillar 110 for receipt of a satellite pillar on the other side. The saddle 116 and aperture 114 on the second side off-set within respect to those on the first.

Figures 8 and 9 show a modification to the satellite pillar 11,12,111,112 in which at least one supplementary support foot 120 is provided. In the embodiment shown, each support foot 120 is hingedly mounted upon the frame of each satellite pillar 11,12,111,112 adjacent the junction with horizontal bar 13,113. Each supplementary support foot 120 is deployable between a stowed position (Figure 9) and a deployed or operative position (Figure 8) to provide additional support.

As indicated above, the barrier system of the present invention is particularly suitable for use in airport situations. However, the present invention finds application in many other fields from the petrochemical industry to any area where health and safety is an issue where quick deployment of a safety barrier will be an advantage.